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Jackson, H. (2017). Seeing and knowing Titanic Belfast using augmented reality: an auto-ethnographic view. *Journal of Media Practice*, 18(2-3), 154-170. <https://doi.org/10.1080/14682753.2017.1374683>

[Link to publication record in Ulster University Research Portal](#)

Published in:
Journal of Media Practice

Publication Status:
Published (in print/issue): 21/09/2017

DOI:
[10.1080/14682753.2017.1374683](https://doi.org/10.1080/14682753.2017.1374683)

Document Version
Author Accepted version

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Seeing and knowing *Titanic* Belfast using augmented reality: an auto-ethnographic view

This paper brings together auto-ethnographic and participatory research to investigate how the practice of vision constructed through a locative-based augmented reality (AR) browser creates and reveals values and meanings connected to geographies of place. Leveraging the potential of the collective cultural consciousness formed by the legacy of *Titanic*, the author has developed an AR browser that layers historic photographs of *Titanic* with the modern day view of the Belfast shipyard in which the ship was built, to investigate the narrative logic of what is seen and understood through the AR browser. This paper seeks to first *show* the experience of the AR construction using an authorial voice, enabling the reader to enter the subjective world of the author's experience, and then *tell* of the experience using a broad framework of visual cultures discourse, thus enabling the narrative fidelity of the subjective experience to have reached beyond that of a description of what is seen and felt. Using this methodology, the paper identifies the affordances and constraints of the AR image in those situations where what is seen via AR technologies, contributes to what is known of the cultural symbolism and value of place.

Keywords: Augmented reality, photography, auto-ethnography, *Titanic*

Introduction

Standing at the base of Thompson Graving Dock and gazing through the mobile screen to view *Titanic* on the horizon, the startled participant exclaims,

It's kind of amazing to see...I just didn't realise how...it *was*. FG3

This hesitancy and bewilderment when responding to the augmented view of the historic photograph of *Titanic* layered with the modern-day scene, highlights the problematic nature of classifying and characterising the descriptions of both the visual sense and subjective experience of the AR image. For example, the participants in Olsson and Salo's (2012) user testing of the subjective experience created by a range of

AR applications provides descriptive statements including ‘cool’, ‘clever’, ‘magic’, ‘wow effect’ and ‘unique.’ (Olsson and Salo 2012, 2784) Fishenden’s (2013) PhD thesis captured similar subjective emotional comments from research participants reflecting on his time and space visual experiments: ‘it’s intense, it’s mind-blowing for me.’ (Fishenden 2013, 156) While generic narratives can be drawn from such statements, such as there are subjective experiences of strong amazement and surprise in experiencing AR images, these comments form only emotional expressions and lack the deeper levels of reflection and analysis required to connect what is being seen and felt to a scholarly frame of analysis.

To address this gap in literature, the situated-ness of the self within the practice of this research aims to capture a more analytical and self-conscious participant in the research process. It is anticipated that this auto-ethnographic methodology will allow for an introspection that can be used persuasively to encourage readers through the ‘thick descriptions of personal and interpersonal experience created by the passion and commitment of the researcher’ (Ellis et al. 2011, vol.12), and act to counter ambiguous subjectively-based qualitative statements. To address the politics of accountability in the research findings that are raised through a solitary expert critic approach, the critical characteristics of the visual AR system revealed in the reflexive analysis are also subject to a focus group mode of enquiry. While the objective of a focus group is to negotiate complex abstract ideas through a process of public debate and negotiation to create a collective understanding of the issues discussed (Gunter 2000), there are potential problems with a focus group approach. It may operate to both reveal conflicting and opposed individual attitudes, and present opportunities for group influence to operate so as to distort an individual opinion (Lunt and Livingstone 1996). Therefore, the focus group is used only as a supplementary stage to this experimental study. As the strength

of a focus group methodology lies in how knowledge is constructed in social situations (Smithson 2000), the emphasis in the analysis of the knowledge constructed from this process, is in how the participants in the group, while bringing forward their own perspectives and experiences of the augmented reality images, developed their ideas collectively.

Having identified the ideal group size for focus group as between eight and twelve (Fern 1982), eight participants for the focus group in this study were drawn from the undergraduate Interactive Media degree programme at Ulster University. Grudens-Schuck et al. (2004) argue that a focus group which is composed of individuals of varying status, such as power, status and education, will inhibit the quality of the data elicited through the discussion. Therefore, both a shared academic knowledge of the subject area raised by the project's critical concepts, and operating as semi-experts in a similar critical theory domain, provided conditions in which a common shared baseline knowledge and subsequent language with which to articulate their own experiences could be achieved. The focus group's discussions of their experience of the AR construction were recorded in situ, in the actual place of the locative media project. Through responding with such immediacy to the experience of the AR project, it was anticipated that the responses would elicit more fruitful considerations and reflections while enabling the participant to return to and draw upon the actual stimulus.

The importance of creating research that can operate to produce a shared sense of understanding also provides a research outcome that is able to move the locus of knowledge from a field of research "towards a transitory existence as a material artefact." (Horst et al. 2012, p.89) It is the aim of the analytical and descriptive analysis in this paper to provide not only a document of the researcher's perspective, but to be able to use personal experience to gain an insight into a broader set of cultural values

attributed to reading the AR image. Thus in building beyond the show and tell aspect of the personal experience, the analysis in this paper can help to anticipate future possibilities and scenarios and act as a guide to the development of other such locative assemblages where other variables may be encountered.

AR and socio-techno discourse

Technologies that create new methods by which objects are made visible are bringing about new ways of seeing the world and also a shift in how the world is known. Situating AR technology within a techno-social framework, a literature review has highlighted discourse connected to these technologies that mark them out as intrinsically invisible (Weiser 1991); attributes their application to methods that are experimental (Kabisch 2008); associates their practice with creating spatial and temporal practices that are unstable (Klutnberg 2006), haunted (Crang and Graham 2007), and malleable (Roberts 2012); and credits them with creating affective nonvisual modes of experience in the viewer (Hansen 2004). As a form that has the potential to create an intuitive and immersive interface to navigate one's surroundings, AR has been deployed as a method for wayfinding in the physical world, and a filter mechanism for contextual information in the digital world across many disciplines including tourism studies (Yovcheva et al. 2012) and library studies (Pence 2010; Hahn 2012). Its potential as an analytical tool for the assessment and design of objects and the means for interpreting relationship between objects has been explored by the built environment (Jeong Kim 2013), landscape studies (Schall et al. 2011), and manufacturing (Griesser et al. 2008).

Early adoption in computer science focused on accurate tracking and registration techniques in relation to the AR layer (Kato et al. 2000), and later, accuracy in

correlation between real movements and those movements in the virtual world (Mac Aoidh and Winstanley 2009). With later more robust technologies, recent discourses have sought to contribute the development of algorithmic methods to ensure the robustness and reliability of the visual form of the AR layer (Yovcheva et al. 2013); analysis of the user experience (UX) of the AR interface, including how the mixed reality information system works and relates to intuitive experiences (Olsson et al. 2013; Dixon et al. 2013); and the evaluation of the subjective emotional user experience (Olsson and Salo 2012; Kozel 2012). While this existing research into AR does draw on analysis of the visual content and how it intervenes in what is seen to create unique experiences of locative spaces, such discourse has largely grown from an engagement with cultural theory that promotes the ‘calculative logic’ (Tuters 2012, 269) of the technology. The meaning and value created by what is seen is framed through analysis of how the *technology* operates to construct what is seen, as opposed to how the viewer constructs meaning and value through what is seen through the augmented reality browser.

To address this gap in literature, this paper is therefore positioned as a visual cultures study, attempting to identify how what is made visible by these technologies, and the objects and texts they create, is bringing about a transformation in our visual culture. To understand how this new ontology for vision is operating, the situated practice of this project is based on a AR system of representation upon which a place-making experience of *Titanic Belfast* is experienced. Providing a material visual practice on which to apply a reflexive visual cultures analysis of the visual system created, the AR browser developed by the author, layers three photographic archives

connected to the Belfast shipyard in which *Titanic* was built, to their modern day view.ⁱ

This paper draws together the findings from auto-ethnographic and participatory research mode of enquiry into the *Titanic* AR browser to understand how AR visual methods act to subvert and/or sustain this particular place-making experience.

Beyond what is seen, an auto-ethnographic study

While the visual analysis of the *Titanic* AR browser in this paper is a synthesized account of the aesthetic affects of these envisioning technologies and the interpretation of the AR image, the analysis also considers the encoded or paradoxical messages contributing to the place-making experience, that operate beyond that of what is seen in the AR image. As the objective of what is seen through the AR browser is to form and/or establish certain facts about *Titanic* and the city in which she was built, it is important to understand how the visual AR construction is operating as a documentary tool in this project. Visual archives used documentary practice do not operate merely to form a historic fact through purely visual methods (Bruzzi 2000). The image does not speak for itself, rather it forms a dialogue between the viewer and the archive form.

While the documentary form operates to organise knowledge, the incompleteness of what is known compels the viewer to consciously intervene in the meaning created. The motivation for the documentary viewer is to form a particular argument about the historical world based on the evidence presented. Consequently, the viewer experiences the documentary text operating within his or her own interpretive field. Accordingly, the highly subjective nature of what is already known about *Titanic* will become part of the framework upon which meanings are constructed using the AR browser.

ⁱ The three images are by Belfast photographer, Alexander Robert Hogg (1870-1939)

While I know *Titanic* and its connection to Belfast through my schooling, the image of *Titanic* resonates in my cultural consciousness most significantly through film and documentary texts. How I know *Titanic* through these texts is significant when considering how this knowledge will contribute to my perceptions about what I see through the AR browser. Heyer (1995), McCaughan (1996), Foster (1997), Howells (1999), Brown (2014) and Devlin (2014) all concur that as a coded cultural device, the *Titanic* story and representations of the tragedy, operate at a level of significant collective consciousness in contemporary culture. While the history of the physical *Titanic* is very brief, operating only from her launch on the 31st May 1911 until her sinking on April 12th 1912, the impact of the tragedy still reverberates in our collective consciousness more than a century later. There have been worse maritime disasters since the *Titanic*, however the tragedy has become embedded in cultural memory through its consumption in public consciousness as ‘the first collective nightmare of the twentieth century.’ (Heyer 1995, iix) Occurring at time of technological development and industrial expansion through the beginning of the twentieth century, the tragedy became symbolically significant as it shattered faith in the supremacy of technology and progress. Consequently the *Titanic* story exists very profoundly as a cultural phenomenon, embedded in the cultural psyche through the persistent and continuous attempts to represent the disaster as an enduring lesson of morality.

As my auto-ethnographic position in this project is heavily influenced by my role in the creative development of the AR browser and the extensive visual archive research that I carried out into *Titanic Belfast*, the information elicited from the focus group provides more concrete evidence of how profoundly *Titanic* as a factual event operates within a shared consciousness. All participants in the focus group were familiar with the history of *Titanic* through the film and television texts. Such familiarity with

Titanic raises concerns that the proliferation of the *Titanic* image culturally might act to erase the temporal dimensions and significance of the history, and therefore lessen the impact of the AR reading in the project's participants. Foster (1997), critiquing how the *Titanic* image resonates in contemporary culture today, indicates that the highly mediatized images of the sinking of *Titanic* and their circulation in popular cultures has seen the image of *Titanic* establish meanings that empty the narrative of any human element. The story of *Titanic* and its tragedy has become,

Represented so variously, that it [has] ceased to be a reality and is merely a set of images (trite or frantically fresh) to be exhibited, bought and sold, history evacuated of its human content for material gain or the prurience of low-intensity imagination. (Foster 1997, 13-14).

Evidence from the focus group did identify with a history of *Titanic* that has become less fixed in the imagination.

Any time that I have seen the *Titanic*, it has been through film or a really modern image...it is easy to forget how old it is because there is so much about it. FG3

However, while the film is the dominant referent on which *Titanic* is known, the story of *Titanic* also existed in the focus group as a significant socially coded cultural message. A number of the participants reported that stories of *Titanic* had been recounted to them through family members, specifically through reports of past generations who worked in the shipyard during its construction. Where *Titanic* as a subject was known through this social form of knowledge, a unique intimate bias is identified in those responding to *Titanic*.

That it did actually happen here and I had people in my family work on it, that was kind of cool. FG5

Responding to *Titanic* these participants positioned histories within a personal interpretive realm that allowed them to validate what is known through the perspective of their own personal histories. In these participants, the human element diminished by the ubiquitous representations of *Titanic* is not only reinstated but what is culturally known about *Titanic* gains a personal affectivity.

As the Belfast shipyard in which *Titanic* was built is spatially substantive in this project, what is known about *Titanic Belfast* will also inform the dialogue between the viewing subject and what is made visual by the technology. The AR experience insists on an embodied system in relation to place, and the place-making form leverages the potential of place to generate a set of values from which the participant in the landscape can derive significance and meaning (Tuan 1977; Buttimer and Seamon 1980; Entrikin 1991). Therefore, understanding how the urban landscape gains its meaning and interpretation through the historical nostalgia connected to *Titanic* is also necessary in the analysis of the subjective experience of what is seen through the AR browser.

To experience the birthplace of *Titanic* today is to view a profound transformation in materiality of the environment. The development of the shipyard site from which *Titanic* was constructed and launched is today part of a commercial strategy to symbolically connect the city of Belfast to the legacy of *Titanic*. Forming the largest property development projects ever undertaken in Northern Ireland, the historical catalyst in the redevelopment of the Belfast shipyard has seen the brand and iconography of *Titanic* drive the context of the architecture-driven regeneration that includes apartments, hotels, *Titanic*-themed restaurants, offices and retail space.

However, this urban intervention has been criticized for promoting a re-use of space that is relational; the historical past becomes framed through interests in the present and thus the place of *Titanic Belfast* is not promoted as ‘authentic, essential and fixed, but as constituted in meaning through relational contestation.’ (Neill 2006, 99)

In the promotion of the site for profit, Neill theorizes that cultural distances have been created in the spatial imagination when experiencing the site, and thus the links to a cultural memory associated with *Titanic*, coarsened. The architectural strategy to alter the site of its historical events has both aesthetically (Coyles 2013) and symbolically (Neill 2006, 2011) diminished the ability of the site to operate as the representational legacy of *Titanic*. The forces of commerce and prosperity that have initiated and formed the spatial experience of the site, elicits in the visitor a spatial imagination in which the *Titanic* heritage has been supplanted by an ambition of economic prosperity. This operates with such a force that Neill (2011, 81) concludes, it ‘excludes other voices from alternative readings of the ship’s meaning.’

These concerns about how the urban landscape at the *Titanic* site is working to frame a set of values that disconnect the visitor to the historical memory of *Titanic*, are sustained within this research. Regardless of the site’s recent visual rehabilitation there is much visible evidence that the site still operates as a commercial shipyard, albeit on a much reduced scale of that at the turn of the last century. Consequently, as a working harbor there are still parts of the site that are only accessible to those who work in the shipyard and the freight transiting through the harbor. The scale of redevelopment diminishes the further one travels from the main traffic junction leading into the *Titanic Quarter*. Once past the Titanic Signature Building and the newly built Belfast Metropolitan Institute of Further Education, the gloss of 21st century urban redevelopment becomes less conspicuous. More apparent is the barren scrubland that

forms large open spaces between Victorian red brick buildings, some of which have obvious signs of use while others are clearly in decay. The only distinguished architectural feature along the mile long journey between the Titanic Signature Building and the entrance to the Graving Dock in which *Titanic* was built is the Paint Hall, a giant warehouse-type building where components of the *Titanic* were once painted, and that today operates as film studio. This building perhaps forms one of the more interesting approaches to the re-use of historic spaces in the city, with the Paint Hall today synonymous with the emergence of a potentially lucrative creative media industry in Northern Ireland. This fledging industry is seen to rub shoulders with Hollywood giants as the film studio has been involved in the production of blockbuster films including *City of Ember* (2008) and the current American HBO series *Games of Thrones*.

Consequently, being in this site, constructs in my spatial imagination both a barren industrial wasteland and post-industrial urban site of living and working; not quite a post-industrial landscape made significant through its historical provenance, nor a historical industrial landscape reinvigorated by modern-day enterprise. Within the focus group participants, it is only when they approached the vacant graving dock in which *Titanic* was constructed, that the spatio-temporal tensions created by the urban landscape dissipate and enable the history of *Titanic* to operate through the poetics of lived space,

I didn't find the space interesting until you actually walked to the edge [of the dock] and looked down, and saw just how far down [the bottom of the dock] actually is. FG5

The materiality of the graving dock prompts the participants to consider features such as enclosure and volume, encouraging an engaged and active dialogue with the location,

You always hear that the *Titanic* was massive, but until you actually see something like that...then you realise, oh, it *was* quite big! FG2

The form of the graving dock enables the participants to construct a spatial image that considers the size and scale of the ship, and thus remember what was once there.

It was really cool to see the actual size of what it had been. FG5

The participants articulate a connection to *Titanic* through what is essentially the material footprint of her form: this is how the landscape becomes as spatially substantive in their consciousness, and frames the connection between *Titanic* and her place.

Seeing Titanic in Titanic Belfast, an auto-ethnographic study

To see the photographic image of *Titanic* layered over the real place from which the photograph was captured, requires the viewer to position the browser window at a specific point of view (POV) at Thompson Graving Dock.

[**Figure 1.** Composite image constructed using *Thompson Graving Dock (with Titanic on the horizon)*.

Photographer A.R. Hogg, Northern Ireland Picture Library, ref. H10-46-86.]

Orientating my position with the POV of the moment-of-image-capture of the historical photographic archive, the direction of the view in the first of these augmented compositions described, is seaward towards the open lough. Within the real scene, modern day shipbuilding signs are clearly visible on either side of the lough. Reading the AR image on the screen, the double image of the Thompson Graving Dock instantly

foregrounds and concentrates my focus on the scale and expanse of the vacant graving dock. To create the digital/physical image composite, its geometric form is instinctively used as the establishing visual marker to align the two-dimensional image with the three-dimensional scene. The architectural form and the strong perspective lines in the image object, further emphasize the scale and physical form of the dock as I use these visual references to assist in the alignment of the juxtaposed real and virtual elements. Attention is therefore almost exclusive to the shape and form of Thompson Graving Dock.

Although diminished in scale, it is the form of *Titanic* on the horizon that subsequently becomes visually arresting, and moves my activity away from establishing spatial similarities between the virtual and the real, to connecting to the scene through temporal methods. While the vacant dock connects the different temporal views compositionally, reading *Titanic* is more symbolic. *Titanic* is a foregrounding of the provenance of the image. This is where my gaze lingers and reflects on what was once there. Connecting with the symbolism of this image-object, *Titanic* transcends its diminished scale and appears to *loom* on the horizon. Its symbolism exceeds the pictorial framing, and in investing in the augmented view as an image that collapses temporal distinctions between past and present, there is a strong emotional connection to what was once there. Privileging a material connection between the locative space and *Titanic* the image validates that *Titanic* was here. Validating the authenticity of the photographic evidence, this is a temporal based reflection: the image connects my consciousness and spatial imagination to knowing *Titanic* was once here, where I am now.

Providing a basis for what is seen, the photographic archive in the AR image forms the representational rhetoric that connects the present to the past. And interpreting

what is seen, reveals how the AR image is clearly operating to intervene in the cultural distance that has been created in the spatial imagination when experiencing this site. The focus group identified with this sense of reaffirmation and validation of the past as connected to a system of visual signs and symbols exchanged between the photograph and the place, and their presence in the location,

Actually seeing pictures while you were there, in the place that it was made, made you think it was actually made here...I never thought of it like that before.

FG5

The archive photograph is operating in this project through very deliberate strategies; to order and demarcate both internal and external temporal dimensions. Communicating an internal temporal characteristic, the photograph in the AR visual system creates a consciousness by which the viewer understands it as having the ability to stand in for an absent subject or moment of the past; how it communicates an awareness of the object's having-been –there-ness (Barthes [1964] 1981). Creating a visual temporal element of what is signified to endure the photograph imbues a quality of looking that is durational. Unlike film that does not stop to reveal the object, the photograph has an external temporal dimension that is able to stop the look and focus the gaze, allowing the gaze to linger and consider what was once there,

I stood there and looked at it and took it all in. FG4

[**Figure 2.** Composite image constructed using *Thompson Graving Dock (view of filled dock, showing R.M.S. Olympic arriving for repairs)*. Photographer A.R. Hogg, Northern Ireland Picture Library ref H10-46-92.]

In the same way the form of *Titanic* is arresting in the previous augmented construction, it is the appearance of *Titanic*'s sister ship, *Olympic*, entering Thompson

Graving Dock that demands attention in the second of these constructed augmented images. The view is again towards the open lough and using similar strategies in the creation of a successful alignment between the real and the virtual elements of the composite image, the architectural form of the dock becomes materially symbolic in creating a visual fidelity between the two points of view.

The quality of the photographic archive in this instance is the poorest. Clearly observed across the surface of the document are smudges and stains of development fluid and inconsistencies in the development process. Furthermore, there are visible scratches indicating significant damage to the original negative. It was therefore anticipated that in responding to this AR image, these visual flaws would impede or reduce the quality of the viewing experience. However, this composite image is considered as one of the more visually successful and perceptually powerful of all of the AR images constructed.

Analysing these affects, there are a number of specific visual outcomes that contribute to the overall visual tension between the temporal and spatial aspects of the two components of the image composite, that serve to heighten and enhance spatial and temporal flows between the two layers of the image. The first of these significant affects relates to the object elements in the virtual image that appear to extend *into* the physical scene. The ropes from the ship's hull observed in the right hand side of the image appear to seek out an anchor in the single layer of real space on the far right hand side of the browser window. The vessel is appearing to quite literally, tie itself to the present day. Furthermore, the body of water observed in the historical document, appears to seep into and fill the (real) empty dock and *alter* the materiality of the real space.

In a similar vein, but through the inverse of this strategy, there are visual markers in the present day that burn through and fix themselves within the historical document. Although it may be purely a consequence of the specific sky scape that was present during the time in which this augmented image was first experienced, the upper half of the archive photograph has an evenness and emptiness to the sky, enabling the present day sky conditions to burn through and illuminate the historical sky scape. Reading this, the ship appears to move its temporal conditions from the past to the present. What is read as an authentic sign from the past, gains its significance and value by understanding how this sign functions in the present. The visual perception is thus connected to observing history in the present (as opposed to stepping through a window in time to observe past histories); *the Olympic was once in this dock, and could be seen from here*. This frame of reference both connects and displaces the viewing experience with the authorship of the original image. While the tactics of appropriation (Nelson 1996) are clearly working to create system of exchange through the mechanics of sight,

Someone who took these photos was standing in the same place that I was, that was kind of cool. That one person stood a hundred years ago and took that photo. I really liked that idea. FG3

they also serve to highlight the active role of the observer,

Rather than taking one person's view of reality in their time, it is taking my view of reality in my time. FG3

To understand how the visual system acts to communicate spatial and temporal elements, the *here/now* and *here/then*, the reflections from the participants on how they orientated themselves within the visual system, offers some unique insights. The participants did not provide any evidence that they experienced any sense of

embodiment that was connected an alternate spatio-temporal dimension. Their comments reveal practices of remembering leveraged by the alternate renderings of space in time that are predominately fixed in reference to the immediate physical space and linear time.

This is actually putting us in the space that maybe our ancestors, maybe...were there. These pictures say that. FG7

[The AR browser] put more history in the space. FG2

The participants are connecting to the history of the space, but the history is viewed from a sense of embodiment in the present as opposed to the past, and the search for understanding the past is formed in the present.

I looked to see what was different. I looked to see whether that was still there or this was still there... FG3

[**Figure 3.** Composite image constructed using *Harland & Wolff (Titanic under construction)*.

Photographer A.R Hogg, Northern Ireland Picture Library, ref. H10-46-132.]

The composite image of the launched *Titanic* (Figure 3) is a little more problematic in establishing spatial and temporal connections. Reading the AR image evokes more of a static and almost dislocated sense of presence when compared to the meanings established in the previous composite images. Without any historical architectural framing captured in the archive photograph to connect the provenance of the photograph to the symbolism of the location, there is nothing to visually connect the vessel to the space in which it is now appearing. The AR image provides a reading of ship at sea, albeit the *Titanic*. Viewing the vessel against open planes of water rather than concrete visual markers also makes it difficult to appreciate the scale of the vessel.

Spatially and temporally dislocated, I am reading an image of the vessel that is essentially *lost at sea*.

However, in moving beyond these tensions, this is perhaps the one image where varying the transparency of the virtual element of the composite image, significantly alters the reading of the image.

[**Figure 4.** Screen image of *Titanic Under Construction* during beta testing (with transparency applied)]

During the beta testing of the AR browser, a (real) vessel was harboured in the lough, occupying part of the same locative space that the *Titanic* image object occupied in the archive photograph. Therefore, when moving the transparency slider downwards to increase the transparency of the photograph, the composite image adjusted to reveal the image of *Titanic* merged with the real vessel. My perception of this merged image-object, is that the two dimensional form of *Titanic* has taken on the three dimensional shape of the real vessel moored in the dock. In strategies akin to the *Advancing Olympic* composite image previously discussed, the real ship becomes a visual marker on which the *Titanic* is able to establish itself and become known in the present.

The AR browser is therefore bringing a new frame of reference for practices of vision connected to the photographic archive, where the framing and composition through its juxtaposition with a material referent in the actual environment, creates a gap between authenticity and validation. The framing and composition through point of view techniques that act to focus the gaze, has a conscious hold over the subjective interpretation of what is read as authentic. This embodied engagement with the technology provides validation of the authenticity of the photographic document. Responding to the photographic image aligned with the material referential markers, I am cognizant of how validation of what is revealed in the photograph is dependent on

identifying the material visual signs in the actual landscape. Thus the logistics of sight, vision, becomes the medium of the experience. The form of the archive image operates through an aesthetic optical perception and a sense of immersion is consciously felt. Knowing through seeing creates an intimacy in what is known; there is a sense that I know more of it because of what I can see. This sense of immersion created by the technology places a physicality, both in terms of the place and my place in it, and on the meaning of the history that is being told through the visual system of transference between past and present. This visual system creates a distinct model of the world, one that requires an embodied presence, and the history that is revealed is made relevant to me on a personal level through my physical position in relation to it.

What becomes known through AR

Ultimately, how *Titanic Belfast* becomes known through this new visual narrative logic is dependent on how the technology empowers users to consider their position, both physically and cognitively, in relation to this history. Providing an image that encourages an affective level of identification with the history, facilitates an experience of the history of place through the witness role, enabling users to bring their own identity, motivation and interests to the interpretation.

The wider *Titanic* site clearly operates as an ideologically conflicted place. However, the specific geographical location of the image readings within the immediate locus of the Thompson Graving Dock is revealed in this study, without the intervention of the technology, to operate so as to connect (albeit at a limited level) to a place-making experience that is *Titanic*. The enclosure of the Thompson Graving Dock and the Victorian red brick architecture in the adjacent buildings, engages a spatial imagination that seeks to remember *Titanic*. These memories however, whilst allowing

the site to gain its historical significance through the materiality of what is visibly encountered, do not foreground or illuminate relationships between the past and the present, or provide a practice of place that operates within the poetics of lived space.

Only once the user is engaged in a practice of seeing where the materiality of the urban space operates to validate what the photograph of *Titanic* already authenticates, is the user able to contemplate a phenomenological experience with the actual landscape. In understanding how the technology operates to uniquely structure the experience of the place, this is primarily defined by the immediacy of experience. The screen technology working in tandem with the view of the landscape enables an experience that ‘provides instant comparison.’ (FG4) While this response identifies how the image construction is understood to operate in real time, and is established in the here and now, it also reveals an experience of content that is medium specific. Asked to consider the advantages of the augmented image over that of a material photograph (for example a photograph on an interpretive panel), the focus group was in unanimous agreement that,

It wouldn’t feel real. You would be looking at [the photograph] but then you look up and [*Titanic*] is not there. FG7

The immediacy of the technology thus provides an ontology of vision that operates to construct a sense of the world that is prioritised as real, rather than one that has to be imagined and therefore considered imaginary. In a visual system of transference between past and present therefore, the conscious experience is of a reality that does not sit outside the imagination, but is congruous with my situated-ness. *I know more of it because I can see it.* Thus while the visual system of signification creates in the viewer a sense of history that is more keenly felt, how this affective experience relates to a

place-making experience (what becomes known of *Titanic Belfast*) is through the lens of the present.

While the AR image creates a new frame of reference on which photographic evidence is known through establishing spatial and material similarities, place becomes understood through the search for visual differences. The viewer of the augmented image does not observe the scene before Hogg's lens, what is observed instead is the continuity between what he saw then, and what is present in the location today. Understanding the photograph in the augmented image as subject to the tactics of appropriation, the photograph when conjoined with the modern day view displaces the vision of Hogg. In relation to practices of vision, we are not merely looking at the subject photographed by Hogg; we are looking *after* Hogg. In this aspect the immediacy of the technology again becomes significant, operating to stimulate the existing landscape through providing a new point of view in which to consider the landscape, a point of view that enables the user to consider a history of place by acknowledging their embodiedⁱⁱ position in relation to this history.

Conclusions

Primarily, the subjective experience of AR reveals a cognitive and conscious shift from authenticity to validation in what is seen and known, whereby new meanings are formed through the establishment of a dialectic between seeing and knowing. Subsequently an intimacy is created by this dialectic, as the viewer is provided with the opportunity to

ⁱⁱ The language of embodiment and how it operates to reframe consciousness in relation to visual arts practice is discussed in Jackson, Helen. 2016. 'Embodiment, Meaning, and the Augmented Reality Image' In *Image Embodiment: New Perspectives of the Sensory Turn*, edited by Lars C. Grabbe, Patrick Rupert-Kruse, and Norbert M. Schmitz. 211-236 Darmstadt: BÜCHNER-Verlag

interpret the image through his or her values and experiences. While these new readings prioritise a referential historical stability that operates to form a model of cultural preservation that gains its aura through the embodied position of the viewer as witness (*the Olympic was once in this dock, and could be seen from here*), there are a number of other more nuanced readings that contribute to and progress the understanding of the subjective experience of this novel form of technology.

This includes image readings that reveal how the establishment of the dialectic between seeing and knowing provide the opportunity for the viewer to engage in a mode of reflexivity that validates not only what was known historically about *Titanic*, but the personal connection to these histories. Engaging in a mode of interpretation that connects what was seen to a personal history, the AR image not only encourages the participant to construct an empathetic narrative in which the participant feels an intimate connection to place and the history connected to the place, but also their connection to the history. Engaging in the mechanics of seeing provides an embodied sense of witness to the history, that creates a system of signification that allows the viewer to feel affectively positioned closer to the history being communicated. This affective experience enables the user to deploy a mode of interpretation through positioning themselves within this frame of the historical referent. This form of perception does not deploy a sense of spatio-temporal imagination connected to a dislocated sense of presence, rather in feeling a sense of history more intimately, the user is able to place their own personal history within this historical referent.

In certain situations, this sense of intimacy *may* have the potential to engage the viewer in powerful fantasies of rationale transcendence; creating an image of the image-object that perceptually breaks from the framing and duration provided by the point of view. In providing an image of partial knowledge, the malleability of the archive

document may enable the viewer to engage in a reflexive form of the practice of documentary that extends the dialogue beyond that of pictorial framing. One of the participants in the research study constructed such an image reading of *Titanic* sailing out of Belfast Lough,

I pictured it on the sea ready to go... I could see it, and see it going, and I knew it would never come back. FG6

However, this did not form any part of the perceptual experience of any other project participant. Consequently, further research into this aspect of rational transcendence into highly imaginative and subjective possibilities relating to AR images is needed to more coherently inform such a thread of discourse.

In all these instances, the image readings constructed reveal that in providing a reflexive image whereby the image content gains validation through how it connects to the landscape both spatially and temporally, the *Titanic* image is able to gain autonomous meanings. This is particularly significant within the context of *Titanic* as the *Titanic* image is very much invested in the fate of the vessel. Yet the image readings in this research provide evidence that the ontology of vision constructed by the form of the image archive, prioritises the construction of new meanings that act to displace this characteristic image reading. And connecting the image readings to a language of vision that locates the viewer within the viewing situation, these new image meanings impose a new narrative logic in the spatial practice of place.

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Supplemental online material

As the augmented reality browser described in this paper requires a location-based experience, this locative experience of the practice-based component has been curated for viewing at www.titanicrediscovered.com

Figures

Figure 1. Composite image constructed using *Thompson Graving Dock (with Titanic on the horizon)*. Photographer A.R. Hogg, Northern Ireland Picture Library, ref. H10-46-86.

Figure 2. Composite image constructed using *Thompson Graving Dock (view of filled dock, showing R.M.S. Olympic arriving for repairs)*. Photographer A.R. Hogg, Northern Ireland Picture Library ref H10-46-92.

Figure 3. Composite image constructed using *Harland & Wolff (Titanic under construction)*. Photographer A.R Hogg, Northern Ireland Picture Library, ref. H10-46-132.

Figure 4. Screen image of *Titanic Under Construction* during beta testing (with transparency applied).

Word Count 7993